PRECAST · LIGHTWEIGHT REINFORCED CONCRETE

ROOF AND FLOOR SLABS

three types

1. Conventional Haydite Concrete Slabs
2. Nailing Concrete Haydite Slabs
3. Zonolite Concrete Insulating Slabs

PRECAST SLAB AND TILE COMPANY
1367 S. Kingshighway Blvd., St. Louis 10, Missouri

PRECAST LIGHT WEIGHT REINFORCED CONCRETE SLABS

As no one type of roof slab will provide for all conditions, we are prepared to make three different types, as described below.

TYPE I—CONVENTIONAL HAYDITE SLAB

Type I is the conventional Haydite slab, made in channel form, having 1" web and either 2¾" or 3½" flanges. In most cases, even for short spans, we recommend the 3½" depth, as the cost of the two types is closely the same, and the 3½" depth can be used for both short and long spans. We recommend a maximum span length for the 3½" slab of 8'-4" and for the 2¾" slab, 6'-4". The 2¾" channel slabs weigh about 11 pounds per square foot, and the 3½" channel slabs about 13 pounds per square foot. (See page 3.)

These slabs are designed for floors or roofs where a combination of strength and light weight is desired and insulation is not required.

A brief specification for the Haydite slabs is as follows: The concrete shall be made of cement, Haydite and sand, mixed with water in a batch mixer in such proportions and plasticity as to produce a concrete having a 28-day compressive strength on standard 6 x 12" cylinders of not less than 2500 pounds per square inch and a weight of not over 100 pounds per cubic foot after curing. The forms shall be of metal, uniform in size, and of sufficient strength as to produce slabs true to line. After removing from forms, slabs shall be cured under cover and kept moist for at least seven days. The reinforcing shall be of rail steel or high carbon billet having a yield point of not less than 50,000 pounds per square inch. The size of bars shall be as shown on the details. The mesh used shall have 12-gauge cross wires spaced 4" centers. The longitudinal bars shall be placed in the center of the flanges and have ½" of concrete below the rod. (This is important.)

TYPE II—NAILING CONCRETE SLAB

Type II is the nailing concrete slab, made similar to the Haydite channel slab but having 1½" web and 4" flanges. The weight per square foot is 13 pounds per square foot after curing. The 28-day compressive strength shall be not less than 1300 pounds per square inch, and the weight after curing shall be about 72 pounds per cubic foot. The maximum span length is 8'-4".

As the name implies, these slabs are designed primarily for sloping roofs where the roofing must be nailed to the slab. Shingles, slate or ply roofing can be used. This type can be used for flashing slabs or other places where nailing properties are required. This concrete was developed by this company in order to fill the need for a concrete that really holds nails. Architects and engineers who have seen or used it, unanimously agree that it is the best nailing concrete they have found. It holds nails almost like oak, and the nails can be driven without special difficulty. The specifications for these slabs, with the exception of the materials and proportions, are the same as for Haydite concrete slabs.

TYPE III—ZONOLITE CONCRETE SLAB

Type III slabs are made of Zonolite water-repellent concrete, having a "K" factor of not more than .67 per inch. The slabs are 4" thick, reinforced with truss reinforcing, either 3/16" or ¼" cold drawn wire. The over-all depth of truss is 3". The distance between intersections on one chord shall be not over 6". The chords shall be double wire with the web between, and all joints between chord and web shall be pressure welded. Transverse wires 3/16" diameter shall be welded to these trusses, both top and bottom, at not over 18" centers. The number of trusses in one slab shall be determined from the table for length and deflection.

The weight of these slabs will be about 11 pounds per square foot, after curing. The slabs are designed for use where insulating value, light weight, or both, combined with high strength, are required. The heat loss through a roof of such slabs, and covered with average built-up roofing, is 0.13 B.t.u. per hour per degree Fahrenheit difference of temperature. Where the under surface is exposed, the sound absorption is about 50%. The resistance to sound traveling through the slabs is very low.

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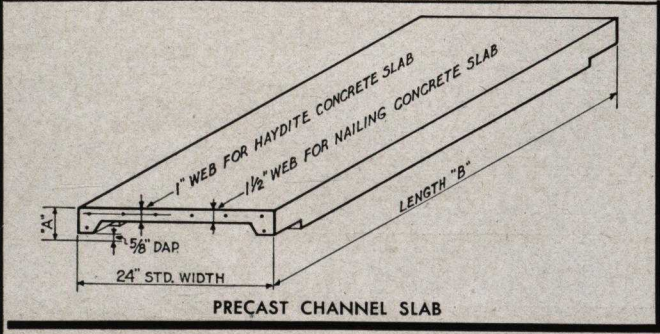
FOR TYPICAL DETAILS, SEE PAGE 4

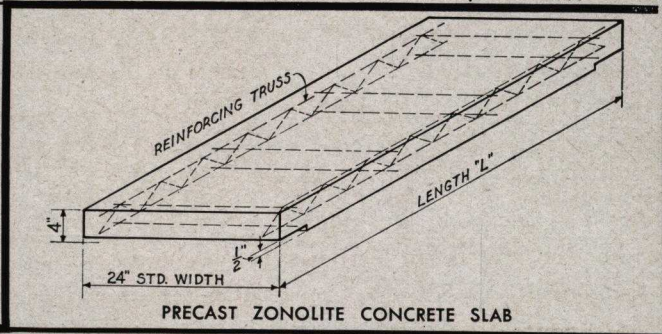
L. Clapp

STRUCTURAL PROPERTIES OF HAYDITE AND NAILING CONCRETE CHANNEL SLABS

Class of Concrete	Haydite	Haydite	Haydite	Nailing	Nailing
Over-all depth "A"	2¾"	3½"	3½"	4"	4"
Effective depth "d"	1.94"	2.69"	2.62"	3.19"	3.12"
Tensile steel diam.	⅜"	⅜"	½"	⅜"	½"
Web thickness	1"	1"	1"	1½"	1½"
Wt. per sq. ft.—lbs.	11	13	13	13	13
Elastic Limit—Steel	50000	50000	50000	50000	50000
Ratio—Steel to concrete Modulus "n"	25	25	25	...	...
Compressive Strength Concrete "F"—lbs.	2500	2500	2500	1300	1300
*Deflection, Inches	.000022WL3	.0000087WL3	.0000055WL3	.0000078WL3	.0000048WL3
Maximum Moment—Ft. Lbs.	1870	2629	4450	3146	5220
*W = Load-Lbs. per Sq. Ft. and L = Span Length in Ft.—Deflection in Inches.					
ULTIMATE LOAD—LBS. SQ. FT. "W"					
4' span	467	500	500	500	500
5' span	300	400	500	400	500
6' span	208	293	417	333	417
6'-4" span	187	...	...	...	...
7' span	...	215	363	257	351
8' span	...	170	280	200	313
8'-4" span	...	150	257	180	300
SQ. FT. LOAD PRODUCING DEFLECTION OF 1/360th OF SPAN					
4' span	96	240	380	268	440
5' span	62	154	243	170	281
6' span	43	107	169	135	195
6'-4" span	38	...	...	...	...
7' span	...	78	124	87	143
8' span	...	60	95	67	110
8'-4" span	...	...	...	...	...



PRECAST CHANNEL SLAB

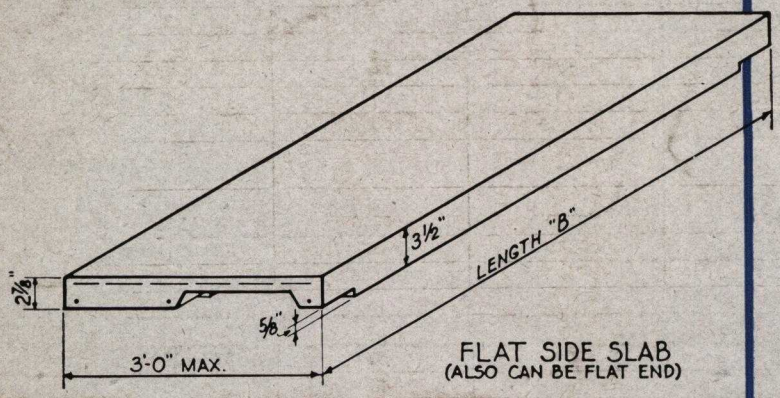


PRECAST ZONOLITE CONCRETE SLAB

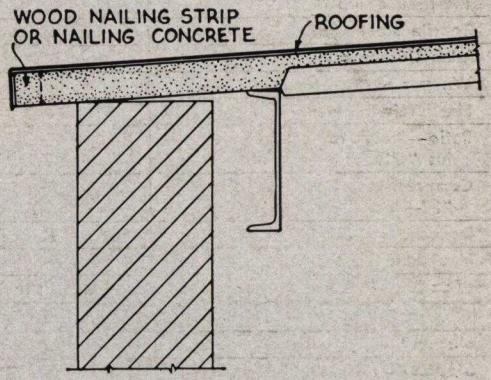
ZONOLITE CONCRETE SLABS REINFORCED WITH REINFORCING TRUSSES

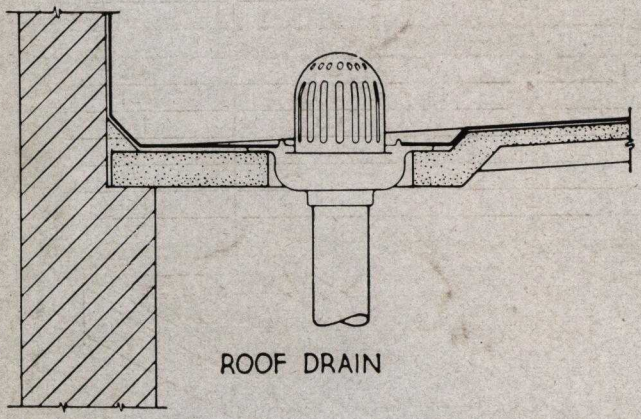
Diam. of Wire in Trusses	3/16 Inch			¼ Inch		
No. of Trusses in Slab	2	3	4	2	3	4
Wt. of Trusses—Lbs./sq. ft.	0.51	0.77	1.02	0.900	1.350	1.800
Ft. Lbs. Moment per 2' Width	1546	2319	3092	2696	4044	5392
TOTAL LOAD PER SQ. FT. WHEN CHORD STRESS EQUALS 60,000 P.S.I.						
L = 4'	386	579	...	674	...	...
L = 5'	248	372	496	432	648	...
L = 6'	172	258	344	300	450	600
L = 7'	...	189	252	220	330	440
L = 8'	...	...	193	168	252	336
L = 9'	...	...	...	...	200	267
L = 10'	...	...	...	...	162	216
SQ. FT. LOAD PRODUCING DEFLECTION OF 1/360th OF SPAN						
L = 4'	161	241	...	280	...	...
L = 5'	82	124	165	144	216	...
L = 6'	48	69	96	80	120	160
L = 7'	...	45	60	52	78	105
L = 8'	...	...	40	35	52	70
L = 9'	...	...	...	...	37	49
L = 10'	...	...	...	...	...	36

TYPICAL DETAILS

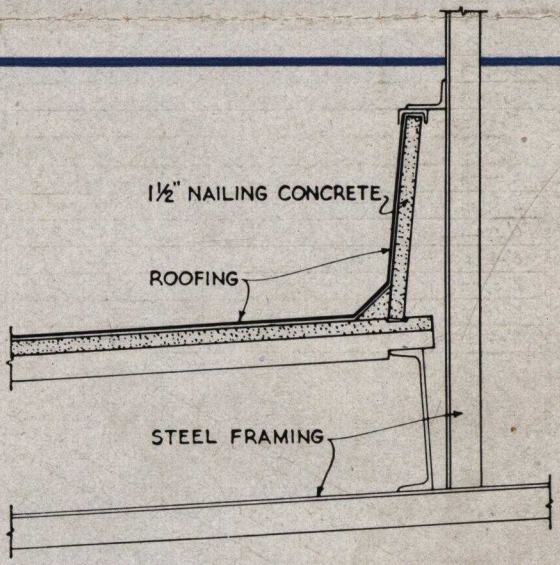


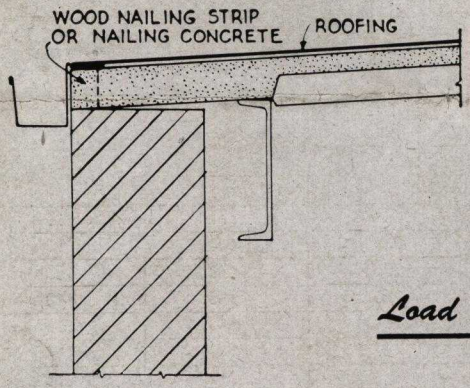
FLAT SIDE SLAB
(ALSO CAN BE FLAT END)



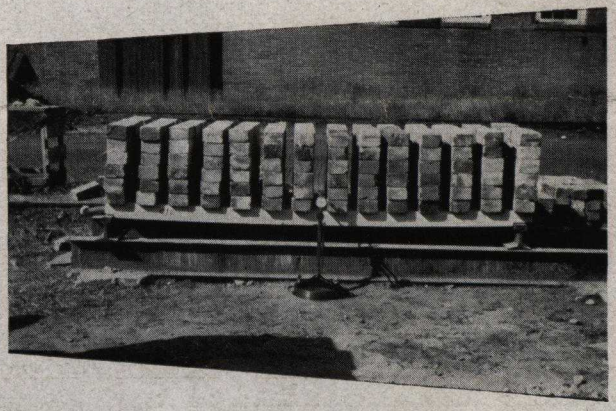


ROOF DRAIN





Load Test on Slab!



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